

REMARKS

Claims 1-17 are pending in the application.

Claims 12-17 are allowed.

Claims 1-11 are rejected.

The specification is objected to by the Examiner.

The drawings filed on March 8, 2004, are objected to by the Examiner.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5).

Claims 1-3 are rejected under 35 U.S.C. 102(a).

Claims 5-11 are rejected under 35 U.S.C. 102(b).

Claim 5 is rejected under 35 U.S.C. 103(a).

No new matter is added.

Claims 1-17 remain in the case for consideration.

Applicant requests reconsideration and allowance of the claims in light of the above amendments and following remarks.

Specification and Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "13A" (page 1, line 22), "13B" (page 1, line 24), "18B" (page 1, line 32), "108" (page 7, line 16), and "112" (page 8, line 10).

The drawings have not been amended in light of the amendments to the specification and the comments below.

The specification has been amended to correct these informalities and to improve the clarity of the disclosure. In particular, the following has been amended in the specification: 1) Page 1, line 22 has been amended to replace "13A" with "13a" to be consistent with Figure 1. 2) Page 1, line 24 has been amended to replace "13B" with "13b" to be consistent with Figure 1. 3) Page 1, line 32 has been amended to replace "18B" with "18b" to be consistent with Figure 1. 4) Page 2, line 14 has been amended to include commas after "device" and after "FIG. 2" for clarity. 5) Page 2, line 15 has been amended to add the word "from" between "distant" and "well" for clarity purposes. 6) Page 5, line 19 has been amended to add the word "first" before the word "sidewall" for clarity purposes. 7) Page 5, line 20 has been amended to add the designation "112a" after "spacer" and to add a comma after "material" for clarity purposes. 8) Page 6, line 15 has been amended to replace "100b" with

“100a” to be consistent with Figure 3. 9) Page 6, line 18 has been amended to replace “110b” with “100a” to be consistent with Figure 3. 10) Page 6, line 26 has been amended to replace “110b” with “100b” to be consistent with Figure 3. 11) Page 7, line 12 has been amended to replace “110a” with “100a” to be consistent with Figure 4. 12) Page 7, line 16 has been amended to remove “108” because it is not reflected in Figure 5, and is later referenced in its patterned form (108a and 108b). 13) Page 8, line 10 is amended to replace “the sidewall spacers 112” with “first sidewall spacer 112a” to be consistent with Figure 6 and the specification. 14) Page 8, line 18 has been amended to replace “regions” with “region” to improve the grammatical clarity of the specification. 15) Page 8, line 33 has been amended to replace “exposed to within” with “exposed within” for clarity purposes. 16) Page 9, line 30 has been amended to replace “view for simplistically” with “view of” for clarity purposes. 17) Page 12, line 25 has been amended to add the designation “220a” after “first recesses” to be consistent with Figure 11. 18) Page 12, line 27 has been amended to add the designation “220b” after “second recesses” to be consistent with Figure 11.

No new matter has been added.

Claim Rejections - 35 USC § 102

Claims 1-3 are rejected under 35 U.S.C. § 102(a) as being anticipated by Kr 1020010065747 submitted by Baek (“Baek”). Claim 1 has been amended to clarify its meaning.

Claim 1 stands rejected under § 102(a) as being anticipated by Baek. Claim 1 is drawn to a method of fabricating a semiconductor substrate. This method comprises:

- forming an isolation layer in a substrate of first conductivity type to define an active region;
- diffusing impurities of second conductivity type in a predetermined region of the active region to form an impurity diffused region;
- recessing a region of the isolation layer and exposing a portion of the substrate material under the impurity diffused region; and
- forming a salicide layer covering the impurity diffused region and covering the exposed portion of the substrate.

In particular, the method of claim 1 includes recessing a region of the isolation layer and exposing a portion of the substrate material *under* the substrate material and forming a salicide layer covering the impurity diffused region and *covering* the exposed portion of the substrate.

In contrast, Baek teaches etching the device isolation layer to form a step difference, then forming a source/drain region to be “bent to the round at the edge of the device isolation layer”, and then finally forming the salicide layer on surfaces of the gate electrode and source/drain region. (See Baek page 7, paragraphs 30-32 and Figures 4 and 5). Thus, Baek teaches that in forming the source/drain region to bend around the edge to the device isolation layer, the source/drain region is formed over any part of the substrate that is exposed by the recess in the device isolation layer. This source/drain formation results in the salicide layer being formed only on the gate electrode and source/drain region *instead* of covering the portion of the first conductivity type material exposed by the recess as claim 1 specifies. This result is clearly observed in Figures 4 and 5 of Baek.

Therefore, because Baek fails to teach these elements of claim 1, it cannot anticipate claim 1. As such, and for at least the reasons mentioned above, Applicants submit that claim 1 is in proper form for allowance and request that the rejection under § 102(b) be removed.

Claims 2-3 depend from claim 1. Based at least on their dependency, Applicants submit that claims 2-3 are likewise in proper form for allowance.

Claims 5-11 are rejected under 35 U.S.C. § 102(b) as being anticipated by US patent No. 5,741,735 issued to Violette et al. (“Violette”).

Claim 5 stands rejected under § 102(b) as being anticipated by Violette. Claim 5 has been amended, and in amended form is drawn to a method of fabricating a semiconductor device comprising:

- forming a device isolation layer in a predetermined region of a substrate of first conductivity type to define an active region;
- forming a gate pattern crossing the active region;
- forming a source/drain region of second conductivity type in the active region at both sides of the gate pattern;
- patterning the device isolation layer to form a recess in the device isolation layer that exposes a portion of the substrate of first conductivity type adjacent the source/drain region at one side of the gate pattern; and
- siliciding a surface of the source/drain region of second conductivity type and a surface of the substrate of first conductivity type exposed by the recess.

In particular, claim 5 has been amended by replacing “patterning the device isolation layer and forming a recess” to “patterning the device isolation layer *to form* a recess” (emphasis added). This amendment clearly distinguishes claim 5 from Violette because Violette creates “a trench *through* the *source region* and an *intermediate region* portion of the upper well region” (column 3, lines 64-66; Figure 6) instead of patterning the device isolation layer to form a recess.

In addition, Violette teaches forming a trench that exposes a portion of the source region and an intermediate portion of the upper well region. (See above). In contrast, claim 5 specifies that in forming a recess, a portion of the substrate of first conductivity type adjacent the source/drain region is exposed. As the office action points out, the substrate of first conductivity type specified by Violette is element 100 in Figure 6 (See also Column 3, line 10). Thus, as clearly shown in Figure 6, the trench specified by Violette only exposes a portion of an intermediate portion of the upper well region and not the substrate of first conductivity type.

In sum, because Violette fails to teach these elements disclosed in claim 5, it cannot anticipate claim 5. As such, and for at least the reasons mentioned above, Applicants submit that claim 5 is in proper form for allowance and request that the rejection under § 102(b) be removed.

Claim 6 is also rejected as anticipated under § 102(b) by Violette. Claim 6 is dependant on claim 5 and further specifies that patterning the device isolation layer to form a recess comprises *etching the device isolation layer* to a depth deeper than the thickness of the source/drain region. As discussed above in reference to claim 5, Violette teaches forming a trench through the source region and a portion of the upper well region, and does not teach method of forming the recess as set forth in claim 6. Thus, because Violette does not teach this element, it cannot anticipate claim 6. As such, Applicants respectfully request that the rejection under § 102(b) be removed.

Claims 7-11 depend from claim 5. Due at least on their dependency, Applicants submit that claims 7-11 are likewise in proper form for allowance.

Claim Rejections - 35 USC § 103

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baek in view of Violette. Claim 4 depends from claim 1. As the above arguments with respect to claim 1 demonstrate, Baek does not teach all of the elements claimed in claim 1. In addition, Violette neither teaches nor suggests these missing elements. In particular, Violette does not teach or suggest recessing a region of the isolation layer or forming a salicide layer covering the impurity diffused region and covering the exposed portion of the substrate under the impurity diffused region. Thus, because neither Baek nor Violette, independently or in combination, teach or suggest all of the elements of claim 4, claim 4 is not obvious over Baek in view of Violette. As such, and for at least the reasons mentioned above, Applicants submit that claim 4 is in proper form for allowance and request that the rejection under § 103(a) be removed.

Allowable Subject Matter

Claims 12-17 are allowed. Applicants thank Examiner for acknowledging the patentable subject matter of claims 12-17. Claims 12 and 13 include minor amendments that clarify these claims. In addition, claim 14 has been amended to delete limitations that are not believed necessary to distinguish this claim over the prior art. Applicants request reconsideration and allowance of amended claim 14.

Conclusion

For the foregoing reasons, reconsideration and allowance of claims 1-17 of the application as amended is solicited. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,

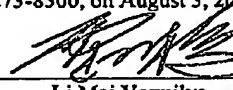
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